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Masahiro Goto

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OLIFF & BERRIDGE, PLC

P.O. BOX 320850

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EXAMINER

LAVARIAS, ARNEL C

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

DETAILED ACTION

Response to Amendment

1. The amendments to the abstract and specification of the disclosure in the submission dated 4/16/08 are acknowledged and accepted. In view of these amendments, the objections to the specification in Sections 5 and 7 of the Office Action dated 1/30/08 are respectfully withdrawn.
2. The amendments to Claim 1 in the submission dated 4/16/08 are acknowledged and accepted.

Response to Arguments

3. The Applicant's arguments filed 4/16/08 have been fully considered but they are not persuasive.
4. The Applicant argues that, with respect to Claim 1, as well as Claims 2-8 which depend on Claim 1, the combined teachings of Moshrefzadeh et al. and Arai fail to teach or reasonably suggest an end of each of the wedge-shaped parts on the side of the entrance surface being a flat surface parallel to the entrance surface. The Examiner respectfully disagrees. It is noted that the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413,

208 USPQ 871 (CCPA 1981). In the instant case, Arai is being cited to evidence the use of a flattened end, as opposed to a pointed end, of the wedge-shaped parts at a side of the entrance surface for allowing light to be transmitted into the wedge-shaped parts without unwanted light scattering. In addition, the Examiner disagrees with Applicant's argument that both Moshrefzadeh et al. and Arai achieve their goal in two distinctly different manners, since both reflect and transmit light via Snell's law, which is dependent on the refractive indices of the media that the light traverses. The use of a particular material (which thus sets the refractive indices) establishes the reflection and transmission characteristics of the wedge-shaped parts.

5. Claims 1-8 are again rejected as follows.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 4, 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moshrefzadeh et al. (WO 01/04701 A1), of record, in view of Arai (U.S. Patent No. 6049649), of record.

Moshrefzadeh et al. discloses a light-diffusing sheet (See for example Figures 5, 7-9) having a flat entrance surface (See for example upper surface of 506 near 500 in Figures 5A-B) and an exit surface (See for example bottom surface of 502 in Figures 5A-B)

parallel to the flat entrance surface, said light-diffusing sheet comprising a sheet body (See for example 506 in Figures 5A-B); and a plurality of wedge-shaped parts (See for example 504 in Figures 5A-B), each being embedded on the side of the exit surface of the sheet body, having a section of a shape substantially resembling a wedge, expanding toward the exit surface, and being formed of a resin having a refractive index lower than that of a material of the sheet body (See for example Page 14, line 28-Page 16, line 19); wherein each of the side surfaces of each of the wedge-shaped parts is formed of inclined surfaces constituting a polygonal surface (See specifically Figures 8A-B), angles formed by the inclined surfaces of each side surface and the perpendicular to the entrance surface gradually become greater toward the exit surface. Moshrefzadeh et al. additionally discloses the ratio of the refractive index of the wedge-shaped parts to that of the sheet body being in the range of 0.90 to 0.97 (See for example Page 15, line 23-Page 16, line 7; wherein the ratio is 0.95); an auxiliary diffusing layer (See for example 522 in Figure 5B; Page 14, line 28-Page 15, line 22) formed on the side of the exit surface of the sheet body; the wedge-shaped parts are arranged at a fixed pitch P and the flat end surfaces of the wedge-shaped parts have a width W in the range of $0.1P$ to $0.2P$ (See for example Page 15, lines 23-31, wherein the width W is approximately $0.20P$); and light-absorbing particles are dispersed in the wedge-shaped parts (See Page 14, line 28-Page 15, line 31). Moshrefzadeh et al. lacks an end of each of the wedge-shaped parts on the side of the entrance surface being a flat surface parallel to the entrance surface. However, Arai teaches a conventional light modifier sheet for diffusing light (See for example Figures 9-10), wherein the light modifier sheet (See for example 14 in Figures 9-10) includes a

plurality of wedge-shaped parts (See for example 14c in Figure 10) in the form of ridges. Further, these ridges are oriented such that the narrow portions are located near the light incident side of the light modifier sheet. Also, these narrow portions include a flat surface parallel to the entrance surface (See 14g in Figure 10). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the end of each of the wedge-shaped parts on the side of the entrance surface be flat surface parallel to the entrance surface, as taught by Arai, in the light-diffusing sheet of Moshrefzadeh et al., for the purpose of allowing light to be transmitted into the wedge-shaped parts without undue light scattering or back-reflection.

8. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moshrefzadeh et al. in view of Arai.

Moshrefzadeh et al. in view of Arai discloses the invention as set forth above in Claim 1. Moshrefzadeh et al. in view of Arai further discloses the angle formed by the inclined surface, nearest to the exit surface, of the side surface of the wedge-shaped part and the perpendicular to the entrance surface being greater than the angle formed by the inclined surface, nearest to the entrance surface, of the side surface of the wedge-shaped part and the perpendicular to the entrance surface (See Figures 8A-B; Page 18, line 20-Page 20, line 12). Moshrefzadeh et al. in view of Arai does not specifically disclose the angle near the exit surface being not smaller than twice the angle near the entrance surface.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the angle near the exit surface be not smaller than twice the angle near the entrance surface, since it has been held that where the general

conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. One would have been motivated to have the angle near the exit surface be not smaller than twice the angle near the entrance surface, for the purpose of providing additional diffusive focusing of the incident light, which would allow for increased contrast without reducing the overall transmission or viewing angle of the light-diffusing sheet. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235.

9. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moshrefzadeh et al. in view of Arai.

Moshrefzadeh et al. in view of Arai discloses the invention as set forth above in Claim 1. Moshrefzadeh et al. in view of Arai further discloses that the exit angle of the incident light may be adjusted via the number and angles of the facets on the sides of the wedge-shaped parts (See for example Figures 8A-B; Page 19, line 13-Page 20, line 12).

Moshrefzadeh et al. in view of Arai does not explicitly disclose the ratio of light rays reflected in total reflection by the exit surface to all of the light rays incident on the entrance surface at incident angles in the range of 0° to 30° is in the range of 0.1% to 3%. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the ratio of light rays reflected in total reflection by the exit surface to all of the light rays incident on the entrance surface at incident angles in the range of 0° to 30° be in the range of 0.1% to 3%, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. One would have been motivated to have the ratio of light rays reflected in total reflection by the exit surface to all of the light

rays incident on the entrance surface at incident angles in the range of 0° to 30° be in the range of 0.1% to 3%, for the purpose of maximizing or optimizing the overall transmission of the light-diffusing sheet, based on the intended application. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235.

10. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moshrefzadeh et al. in view of Arai.

Moshrefzadeh et al. in view of Arai discloses the invention as set forth above in Claim 1. Moshrefzadeh et al. in view of Arai further discloses that the number and angles of the facets on the sides of the wedge-shaped parts may be adjusted to adjust the diffusing properties of the light-diffusing sheet (See for example Figures 8A-B; Page 19, line 13- Page 20, line 12). Moshrefzadeh et al. in view of Arai does not explicitly disclose the ratio of light rays reflected in total reflection at least twice on the side surfaces of the wedge-shaped parts to all of the light rays perpendicularly incident on the entrance surface is 1% or above. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the ratio of light rays reflected in total reflection at least twice on the side surfaces of the wedge-shaped parts to all of the light rays perpendicularly incident on the entrance surface be 1% or above, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. One would have been motivated to have the ratio of light rays reflected in total reflection at least twice on the side surfaces of the wedge-shaped parts to all of the light rays perpendicularly incident on the entrance surface be 1% or above, for the purpose of

optimizing the diffusing directions of the light-diffusing sheet, based on the intended application. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arnel C. Lavarias whose telephone number is 571-272-2315. The examiner can normally be reached on M-F 10:00 AM - 6:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephone B. Allen can be reached on 571-272-2434. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2872

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Arnel C. Lavarias
Primary Examiner
Group Art Unit 2872
6/27/08

/Arnel C. Lavarias/
Primary Examiner, Art Unit 2872